

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claims 1-13 (cancelled)

Claim 14 (currently amended): A coated article, comprising:

an article having a surface coated with a hydrophilic coating, said hydrophilic coating comprising:

~~an acrylic~~ a polyacrylate or polymethacrylate polymer matrix, said ~~acrylic~~ polyacrylate or polymethacrylate polymer having an equivalent weight of functional moiety in the range of 200 to 1000 g/eq. and forming a three-dimensional network through crosslinking bridges at said functional moiety; and

a hydrophilic polymer, said hydrophilic polymer associated with the supporting polyacrylate or polymethacrylate polymer,

the ~~acrylic~~ polyacrylate or polymethacrylate polymer matrix having a crosslink density such that the coating retains slip for up to 24 hours in ambient aqueous medium.

Claim 15 (cancelled)

Claim 16 (previously presented): The coated article of claim 14, wherein the hydrophilic polymer is selected from the group consisting of poly(N-vinyl lactams), poly(ethylene oxide), poly(propylene oxide), polyacrylamides, cellulosics, polyacrylic acids, polyvinyl alcohols, and polyvinyl ethers.

Claim 17 (original): The coated article of claim 14, wherein the crosslink density is in the range of 100-10,000 g/equivalent crosslink.

Claim 18 (previously presented): The coated article of claim 14, wherein the crosslinking bridges are selected from the group consisting of moieties derived from aziridines, carbodiimides, epoxides, unsaturated carbon-carbon and carbon-heteroatom bonds, and melamine and urea/formaldehyde condensates.

Claim 19 (previously presented): The coated article of claim 14, wherein the surface is selected from the group consisting of ocular devices, lenses, medical devices, membranes, recreational products, open cell foams, and closed cell foams.

Claims 20-30 (cancelled)

Claim 31 (previously presented): The coated article of claim 14, wherein the crosslink density is in the range of 100-1000 g/equivalent crosslink.

Claim 32 (currently amended): The coated article of claim 14, wherein the polymer of said polymer matrix has a ~~weight~~ an average molecular weight in the range of 5,000 to 10,000,000.

Claim 33 (currently amended): The coated article of claim 14, wherein the polymer of said polymer matrix has a ~~weight~~ an average molecular weight in the range of 30,000 to 100,000.

Claim 34 (previously presented): The coated article of claim 14, wherein the polymer of the polymer matrix and the hydrophilic polymer are present in a ratio in the range of 1:10 to 20:1.

Claim 35 (previously presented): The coated article of claim 14, wherein the polymer of the polymer matrix and the hydrophilic polymer are present in a ratio in the range of 1:3 to 5:1.

Claim 36 (previously presented): The coated article of claim 14, further comprising:
one or more additives selected from the group consisting of co-solvents, plasticizers, anti-foaming agents, anti-crater agents, coalescing solvents, bioactive agents, antimicrobial agents, antithrombogenic agents, antibiotics, pigments, paint additives, radiopacifiers and ion conductors.

Claim 37 (previously presented): The coated article of claim 14, wherein the hydrophilic polymer comprises poly(vinyl pyrrolidone).

Claim 38 (new): The coated article of claim 14, wherein the polyacrylate or polymethacrylate polymer matrix is a copolymer comprising a polymeric system having no functional moieties and a polyacrylate or polymethacrylate.

REMARKS/ARGUMENTS

I. Amendments to the Claims

Claims 14, 16-19 and 31-37 are pending in this application.

Claims 14, 32 and 33 have been currently amended.

Claim 38 is newly added.

Support for the claim amendments can be throughout the applications as filed.

Specifically, support for the amendment to claim 14 can be found at page 5, lines 9-10 and page 8, lines 16-17. The amendment to claims 32 and 33 find support at page 4, lines 13-14 and page 10, lines 11-12. New claim 38 finds support at page 8, lines 20-23.

As amended claims present no new issue of patentability and put the claims in condition for allowance, entry of the claims is requested.

II. Applicant's Invention

The invention is directed to a coated article having a lubricious hydrophilic coating. The hydrophilic coating is made up of a three-dimensional supporting polyacrylate or polymethacrylate polymer matrix formed through crosslinking bridges at functional moieties on the polymer. The coating additionally includes a hydrophilic polymer associated with the supporting polyacrylate or polymethacrylate polymer. When in contact with an aqueous medium, the hydrophilic polymer hydrates and becomes lubricious. The coating relies upon physical entanglement or other favorable associative interactions to retain the hydrophilic polymer within the three-dimensional network. Proper selection of the crosslink density provides the desired durability (slip retention) without compromising the ability of the hydrophilic polymer to hydrate and become slippery. The polyacrylate or polymethacrylate polymer has an equivalent weight of functional moiety in the range of about 200 to 1000g/eq.

The invention addresses the problem of how to provide a slippery, yet durable, coating, *i.e.*, one that does not wear or wash off while in use in an aqueous medium. In order to provide a lubricious coating, the hydrophilic polymer of the coating needs a certain degree of mobility in order to solvate and to interact with the aqueous solution. That same mobility leads to the loss of the hydrophilic polymer from the coating and a loss of slipperiness (poor slip retention). In prior art coatings, the hydrophilic component of the coating is washed away due to its preferential interaction with the aqueous environment. The present invention provides a crosslinked

supporting polymer having sufficient crosslink density to retain the hydrophilic polymer during exposure to aqueous environment, without destroying slip.

III. Rejection of claims 14, 16-19 and 31-37 (renumbered) under 35 U.S.C. § 112, first paragraph.

Claims 14, 16-19 and 31-37 (renumbered) are rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Claims 14, 32 and 33 have been amended so as to comply with the written description requirement. The term acrylic has been deleted and the term “polyacrylate” and “polymethacrylate” have been added to claim 14. The term “weight” has been deleted from the phrase “weight average molecular weight” in claims 32 and 33. The phrase now reads “average molecular weight.”

IV. Rejection of claims 14, 16-19 and 31-37 (renumbered) under 35 U.S.C. § 112, second paragraph.

Claims 14, 16-19 and 31-37 (renumbered) are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to point out and distinctly claim the subject matter which applicant regards as the invention and the enabling requirement. In particular the Examiner states that, “[t]he recited ‘the supporting acrylic polymer’ per claim 14, at lines 7-8 constitutes indefinite subject matter as per the non-express establishment of proper antecedent basis.” Claim 14 presented with this response does not include the objected claim language.

It is submitted that these amendments are fully supported by the specification and do not incorporate new matter. Furthermore, it is submitted that the amended claims satisfy the requirements of 35 U.S.C. § 112, second paragraph. The rejection may now be withdrawn.

V. Double Patenting

The Applicant gratefully acknowledges the withdrawal of the nonstatutory double patenting rejection raised by the Examiner in paper no. 9.

VI. Rejection of claims 14, 16-19 and 31-37 under 35 U.S.C. § 102(e)/103(a).

Claims 14, 16-19 and 31-37 (renumbered) stand rejected under 35 U.S.C. § 102(e) as anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as obvious over, Yamasoe *et al.*, (U.S. Patent No. 5,478,872 (the “Yamasoe patent”)). The Office Action considers that

Yamasoe *et al.* therefore anticipate the instantly claimed invention with the understanding that the components of the hydrophilic coating of Yamasoe *et al.* overlap in scope with the components of the hydrophilic coating per the claimed invention. It appears that the *functional moiety of the acrylic polymer per Yamasoe et al. has an equivalent weight falling within the scope of the claims*. It would be expected that the crosslink density of the acrylic polymer system of Yamasoe *et al.* is sufficient to engender a slip retention of the hydrophilic coating falling within the scope of the claims since the hydrophilic coating of Yamasoe *et al.* is essentially the same as and made in essentially the same manner as applicant’s claimed hydrophilic coating. The onus to show that this, in fact, is not the case is shifted to applicant under the guise of *In re Best et al* (195 USPQ 430).”. (See page 5 of the Office Action dated 8/10/2003)

As explained by Ms. Opolski in the accompanying Declaration, Yamasoe *et al.* does not teach polyacrylates with an equivalent weight of the functional moiety in the range of about 200 to about 1000 g/eq. Thus, the polyacrylates of Yamasoe do not have, nor do they appreciate the need to have, the crosslink density sufficient to engender a slip retention of the hydrophilic coating falling within the scope of the instant claims.

For the foregoing reasons, it is submitted that the claimed invention is not anticipated by, or obvious in view of the Yamasoe patent.

VII. CONCLUSION


Applicants submit that the outstanding rejections of the claims have been fully overcome. Accordingly, Applicants respectfully submit that the pending claims 14, 16-19 and 31-37 (renumbered), are now in condition for allowance. If the Examiner believes that any further discussion of this communication would be helpful, she is encouraged to contact the undersigned by telephone.

No additional fees are believed to be due in connection with this Amendment and Response. However, please apply any additional charges, or credit any overpayment, to our Deposit Account No. 08-0219.

Respectfully submitted,

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